

**IN THE SPECIFICATION:**

Please insert the attached substitute Sequence Listing into the above-identified patent application.

**IN THE CLAIMS:**

Please cancel claims 25-27 and insert new claims 28-60 as follows.

28. (New) Peptide fragment derived from ubiquitidine and comprising a continuous series of at least 3 amino acids from the amino acid sequence of ubiquitidine: KVHGSLARAGKVRGQTPKVAKQEKKKKKTGRAKRRMQYNRRFVNVVPTFGKKKGPNA NS, (SEQ ID NO: 1) with the exception of peptides having the amino acid sequence KVHGSLARAGKVRGQTPKVAKQ (SEQ ID NO: 10) or AGKVRGQTPKVAKQEKKKKKT (SEQ ID NO: 11).

29. (New) Peptide fragment as claimed in claim 28, comprising a continuous series of at least 8 amino acids from the amino acid sequence of ubiquitidine: KVHGSLARAGKVRGQTPKVAKQEKKKKKTGRAKRRMQYNRRFVNVVPTFGKKKGPNA NS, (SEQ ID NO: 1) with the exception of peptides having the amino acid sequence KVHGSLARAGKVRGQTPKVAKQ (SEQ ID NO: 10) or AGKVRGQTPKVAKQEKKKKKT (SEQ ID NO: 11).

30. (New) Peptide fragment as claimed in claim 28, with one of the following amino acid sequences:

ubiquitidine (1-18)	KVHGSLARAGKVRGQTPK (SEQ ID NO: 2)
ubiquitidine (29-41)	TGRAKRRMQYNRR (SEQ ID NO: 3)

ubiquitidine (18-29)	KVAKQEKKKKKT (SEQ ID NO: 4)
ubiquitidine (18-35)	KVAKQEKKKKKTGRAKRR (SEQ ID NO: 5)
ubiquitidine (29-35)	TGRAKRR (SEQ ID NO: 7)
ubiquitidine (42-59)	FVNVVPTFGKKKGPNANS (SEQ ID NO: 8)
ubiquitidine (36-41)	MQYNRR (SEQ ID NO: 9)

31. (New) Derivative of ubiquitidine or of a peptide fragment derived from ubiquitidine and comprising a continuous series of at least 3 amino acids from the amino acid sequence of ubiquitidine:

KVHGSLARAGKVRGQTPKVAKQEKKKKKTGRAKRRMQYNRRFVNVVPTFGKKKGPNANS, (SEQ ID NO: 1) which derivative has an amino acid sequence which is at least partly the reverse of the amino acid sequence of the corresponding original peptide.

32. (New) Derivative of a ubiquitidine or of a peptide fragment derived from ubiquitidine and comprising a continuous series of at least 3 amino acids from the amino acid sequence of ubiquitidine:

KVHGSLARAGKVRGQTPKVAKQEKKKKKTGRAKRRMQYNRRFVNVVPTFGKKKGPNANS, (SEQ ID NO: 1) wherein at least one of the amino acids from the original peptide is replaced by a stereoisomer of that amino acid.

33. (New) Derivative of ubiquitidine or of a peptide fragment derived from ubiquitidine and comprising a continuous series of at least 3 amino acids from the amino acid sequence of ubiquitidine:

KVHGSLARAGKVRGQTPKVAKQEKKKKKTGRAKRRMQYNRRFVNVVPTFGKKKGPNANS

NS, (SEQ ID NO: 1) wherein the original amino acid chain is extended at one or both ends thereof with one or more groups, such as D-amino acids, protecting against degradation.

34. (New) Derivative as claimed in claim 33, with the amino acid sequence:  
D-A-KVAKQEKKKKKTGRAKRR--D-A (SEQ ID NO: 6)  
in which D-A represents D-alanine.

35. (New) Hybrid molecule, comprising a cationic peptide with an antimicrobial action and/or a peptide fragment as claimed in claim 28, and one or more effector molecules.

36. (New) Hybrid molecule as claimed in claim 35, wherein the effector molecule comprises an amino acid chain which is capable of binding to a micro-organism and/or substances secreted by micro-organisms or expressed on the surface thereof.

37. (New) Hybrid molecule as claimed in claim 35, wherein the effector molecule is an endotoxin-binding peptide.

38. (New) Hybrid molecule as claimed in claim 35, wherein the effector molecule is a detectable label.

39. (New) Hybrid molecule as claimed in claim 38, wherein the detectable label is a radionuclide chosen from the group consisting of technetium 99m (Tc-99m), iodine 123 (I-123) and 131 (I-131), bromine 75 (Br-75) and 76 (Br-76), lead 203 (Pb-203), gallium 67 (Ga-67)

and 68 (Ga-68), arsenic 72 (As-72), indium 111 (In-111), 113m (In-113m) and 114m (In-114m), ruthenium 97 (Ru-97), copper 62 (Cu-62), 64 (Cu-64) and 67 (Cu-67), iron 52 (Fe-52), manganese 52m (Mn-52m), chromium 51 (Cr-51), rhenium 186 (Re-186) and 188 (Re-188), terbium 161 (Tb-161), yttrium 90 (Y-90), fluorine 19 (F-19), sodium 23 (Na-23), phosphorus 31 (P-31), gadolinium 157 (Gd-157), manganese 55 (Mn-55), dysprosium 162 (Dy-162), chromium 52 (Cr-52) and iron 56 (Fe-56).

40. (New) Hybrid molecule as claimed in claim 35, wherein the cationic peptide with antimicrobial activity is chosen from the group consisting of  $\alpha$ - and  $\beta$ -defensins, ubiquicidine, protegrins, serprocidine, magainins, Pr-39, and cecropins.

41. (New) A method for the therapy of an infection in humans and animals, comprising:

a) administering a compound selected from the group consisting of ubiquicidine, a derivative of ubiquicidine, and a peptide fragment derived from ubiquicidine and comprising a continuous series of at least 3, amino acids from the amino acid sequence of ubiquicidine:

KVHGSLARAGKVRGQTPK<sup>V</sup>AKQEKKKKKTGRAKRRMQYNRRFVN<sup>V</sup>VPTFGKKKGPNA  
NS (SEQ ID NO: 1); and

b) treating the infection.

42. (New) The method of claim 41, wherein the peptide fragment comprises a peptide fragment, comprising a continuous series of at least 8 amino acids from the amino acid sequence of ubiquicidine:

KVHGSLARAGKVRGQTPKVAKQEKKKKKTGRAKRRMQYNRRFVNVPFTFGKKKGPNA  
NS, (SEQ ID NO: 1) with the exception of peptides having the amino acid sequence  
KVHGSLARAGKVRGQTPKVAKQ (SEQ ID NO: 10) or AGKVRGQTPKVAKQEKKKKKT  
(SEQ ID NO: 11).

43. (New) The method of claim 41, wherein the derivative comprises a  
derivatives, derivative of ubiquicidine or of a peptide fragment derived from ubiquicidine and  
comprising a continuous series of at least 3 amino acids from the amino acid sequence of  
ubiquicidine:

KVHGSLARAGKVRGQTPKVAKQEKKKKKTGRAKRRMQYNRRFVNVPFTFGKKKGPNA  
NS, (SEQ ID NO: 1) which derivative has an amino acid sequence which is at least partly the  
reverse of the amino acid sequence of the corresponding original peptide.

44. (New) The method of claim 41, wherein the peptide fragment is  
incorporated into a hybrid molecule.

45. (New) The method of claim 41, wherein the microbial infection is caused  
by a cause selected from the group consisting of Gram-positive bacteria, Gram-negative bacteria,  
fungi, viruses, and parasites.

46. (New) Antimicrobial agent, comprising at least a suitable quantity of one  
or more active components chosen from ubiquicidine, peptide fragments derived from ubiquicidine  
and comprising a continuous series of at least 3 amino acids from the amino acid sequence of  
ubiquicidine:

KVHGSLARAGKVRGQTPKVAKQEKKKKKTGRAKRRMQYNRRFVNVVPTFGKKKGPN  
ANS (SEQ ID NO: 1).

47. (New) The method of claim 41, wherein the compound comprises an antimicrobial agent, comprising at least a suitable quantity of one or more active components chosen from ubiquicidine, peptide fragments derived from ubiquicidine and comprising a continuous series of at least 3 amino acids from the amino acid sequence of ubiquicidine:

KVHGSLARAGKVRGQTPKVAKQEKKKKKTGRAKRRMQYNRRFVNVVPTFGKKKGPN  
NS (SEQ ID NO: 1).

48. (New) Diagnostic agent, comprising a suitable quantity of one or more active components provided with a detectable label and chosen from ubiquicidine, peptide fragments derived from ubiquicidine and comprising a continuous series of at least 3 amino acids from the amino acid sequence of ubiquicidine:

KVHGSLARAGKVRGQTPKVAKQEKKKKKTGRAKRRMQYNRRFVNVVPTFGKKKGPN  
NS, (SEQ ID NO: 1) or derivative or hybrid molecules thereof by transforming an animal egg-cell with a gene construct which codes for the ubiquicidine, peptide fragment, derivative or hybrid molecule, regenerating a transgenic animal from the transformed egg-cell and isolating the ubiquicidine, peptide fragment, derivative or hybrid molecule from a tissue or bodily fluid of the animal.

Process  
Step (5)

49. (New) Method for monitoring a treatment, comprising:

a) administering an antimicrobial agent, comprising at least a suitable quantity of one or more active components chosen from ubiquicidine, peptide fragments derived from

ubiquitidine and comprising a continuous series of at least 3 amino acids from the amino acid sequence of ubiquitidine:

KVHGSLARAGKVRGQTPKVAKQEKKKKKTGRAKRRMQYNRRFVNVPFTFGKKKGPN  
NS (SEQ ID NO: 1),

- b) observing the localization of the agent in time, and
- c) following the effect of the treatment.

50. (New) Method for labeling a cationic peptide with antimicrobial action, comprising placing the peptide for labeling in contact with a tin (II) salt, a borohydride and a radioactive label in the presence of alkali, wherein the peptide is modified with MAG3 (mercapto-acetyl glycine-glycine-glycine).

51. (New) Method as claimed in claim 50, wherein the tin (II) salt and the borohydride are respectively tin (II) pyrophosphate and sodium borohydride or potassium borohydride, which are used in a ratio between 1:1 and 1:10 in quantities of respectively 0.5-5  $\mu$ l and 2-10  $\mu$ l, wherein the radioactive label is a standard solution of  $^{99m}\text{Tc}$ -pertechnetate or  $^{186}\text{Re}$ -perrhenate in a quantity of 0.05-0.5 ml, preferably 0.1 ml, wherein the alkali is sodium hydroxide and the alkali concentration is 0.5-5 M, preferably 0.1 M, and wherein the whole is stirred for 1 to 60 minutes at a temperature between room temperature and 40°C.

52. (New) Method for preparing ubiquitidine, peptide fragments derived from ubiquitidine and comprising a continuous series of at least 3 amino acids from the amino acid sequence of ubiquitidine:

KVHGSLARAGKVRGQTPKVAKQEKKKKKTGRAKRRMQYNRRFVNVPFTFGKKKGPN

ANS (SEQ ID NO: 1), or derivatives or hybrid molecules thereof by transforming an animal egg-cell with a gene construct which codes for the ubiquidine, peptide fragment, derivative or hybrid molecule, regenerating a transgenic animal from the transformed egg-cell and isolating the ubiquidine, peptide fragment, derivative or hybrid molecule from a tissue or bodily fluid of the animal.

53. (New) Hybrid molecule, comprising a cationic peptide with an antimicrobial action and/or a peptide fragment as claimed in claim 31 and one or more effective molecules.

54. (New) Peptide fragments as claimed in claim 45, or derivative or hybrid molecules thereof, wherein the microbial infections are caused by causes selected from the group comprising *Staphylococcus aureus*, *Listeria monocytogenes*, Multidrug Resistant *S.aureus* (MRSA)), *Klebsiella pneumoniae*, *Escherichia coli*, enterococci, *Salmonella typhimurium*, *Mycobacterium avium*, *Mycobacterium fortuitum*, *Candida albicans*, *Cryptococcus neoformans*, *Aspergillus fumigatis*, *Trypanosoma cruzi* and *Toxoplasma gondii*.

55. (New) Antimicrobial agent as claimed in claim 46, further comprising at least one excipient.

56. (New) Method as claimed in claim 51, wherein the tin (II) salt and the borohydride are used in a ratio of 1:4.



57. (New) Method as claimed in claim 51, wherein the whole is stirred for 5 to 30 minutes.

58. (New) Method as claimed in claim 51, wherein the whole is stirred at about 37°C.

59. (New) Method as claimed in claim 52, wherein the bodily fluid of the animal is milk.

60. (New) Method for providing prophylactic action, comprising:  
a) administering a peptide fragment, derived from ubiquicidine and comprising a continuous series of at least 3 amino acids from the amino acid sequence of ubiquicidine:

KVHGSLARAGKVRGQTPKVAKQEKKKKKTGRAKRRMQYNRRFVNVVPT  
FGKKKGPNANS, (SEQ ID NO: 1) with the exception of peptides having the amino acid sequence KVHGSLARAGKVRGQTPKVAKQ (SEQ ID NO: 10) or AGKVRGQTPKVAKQEKKKKKT (SEQ ID NO: 11) in the form of a coating, and

b) providing prophylactic action thereby.

**IN THE DRAWINGS:**

A copy of Fig. 1 has been supplied with the amendment (the addition of SEQ ID NO:) indicated in red. This correction will be made formally when formal figures are filed at a later date.